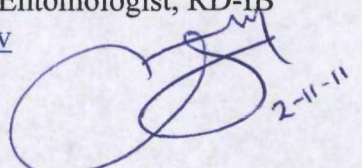


Efficacy Review

Date: February 11, 2011

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Product: Black Flag Home Insect Control

EPA Reg. No.: 79529-31

A.I.'s: Deltamethrin (0.32%)

Decision #: 442236

DP #: 385121

Submission: R272, Applicant-Initiated 2, Protocol

MRID: 48298201

GLP: N/A

MRID 48298201

Protocol Title: Residual Evaluations of Black Flag Home Insect Control (79529-30) and Black Flag Home Insect Control Concentrate (79529-31) Against Various Insect Species Following Intermittent 5 Minute or 1 Hour Exposures to Treated Non-Porous Surfaces.

Purpose/Objectives: To evaluate the long-term efficacy of 2 products against various insect species following intermittent 5 minute or 1 hour exposures to treated non-porous surfaces (ceramic tile).

Materials and Methods:

Guideline: OPPTS 810.3500

Species: German Cockroaches (*Blatella germanica*), Argentine Ants (*Linepithema humile*), Pharaoh Ants (*Monomorium pharaonis*), Firebrats (*Thermobia domestica*)

Test materials: Bifenthrin, 0.05% (positive control), Deltamethrin, 0.02% (RTU), Deltamethrin 0.32% (concentrate)

Study conducted by: Snell Scientifics, LLC.

Proposed Exposures: For Ants and firebrats, exposures of 5 minutes are proposed to be repeated 3 times in a single day, due to foraging behaviors. For cockroaches, exposures of 1 hour are proposed due to extended harboring in cracks and crevices, and under harborage where the surface would be treated with insecticide.

Design: 5 replicates each of 4 treatments (2 experimental, 1 negative control, 1 positive control), with 10 specimens in each rep. Applications will be made to ceramic tiles. After applications, tiles will be stored under ambient laboratory conditions and aged to the appropriate duration for evaluation (study repeated at 1, 3, 6, 9, and 12 months after application). Individual species may be dropped from the study if <90% mortality is observed.

Exposures: At each test interval, the ants and firebrats will be exposed for 5 minutes at 0hr, 1 hr, and 4 hrs to simulate natural harborage and movement. Cockroaches will be exposed once for 1 hour continuously.

Dosages: 1 gal/1000 square feet of each product, using hand pump sprayers that the consumer receives for using the product. Applications will be timed in the lab using a calibrated metronome, to apply the product as directed according to the label.

Data collection: Specimens will be scored as alive, knocked-down, or dead, at 30 minutes, 1 hr, and 24 hours following exposures to test surfaces. Missing insects (that escape exposure or post-exposure arenas) will be excluded from the calculation.

Statistics: Summary percent mortality will be calculated and comparisons will be made using a t-test.

Protocol Summary of Supported claims:

The submitted protocol does not propose which specific claims would be supported by such a study, but this study would adequate to support residual control claims for durations up to 12 months after application, depending on the results.

Entomologist's Observations/Discussion:

1. The proposed durations of control would be acceptable only if the product can be shown to be non-repellant in nature. If the product is significantly repellent to these test species,

it is unlikely that ants or other foragers would repeatedly encounter treated surfaces for over 5 minute durations. Similarly, if the product is repellent to cockroaches, it is unlikely that cockroaches in cracks and crevices would remain in contact with the material for periods of an hour or longer.

2. To demonstrate non-repellence, a concurrent choice study could be submitted to show that a representative species of both ants and cockroaches was not repelled by residues of Deltamethrin, in a laboratory setting (i.e., a test chamber in which half is treated and half is left untreated, and foraging is recorded). Alternative methods to support the non-repellence of the test substance can also be evaluated.
3. Application rates for all products in the study must result in residues that match or are less than the residue that would result from application of each product at its reselective lowest labeled rate, according to the labeled application directions
4. For evaluations of mortality, specimens must be removed to clean containers after each exposure (or for cockroaches, after the single exposure).
5. Mortality reduction calculations (using Abbott's formula) are suggested for calculation of percent mortality in the treated groups.
6. More insect species may need to be evaluated, depending on what kinds of claims the registrant seeks. The study as submitted would only support species-specific claims for Argentine and Pharaoh's Ants and German Cockroaches. The study is not adequate to support a general ant or cockroach claim. In order to support a general claim against foraging ants, efficacy must be demonstrated against Imported Fire, Pharaoh's, Harvester (fire ant data can be bridged to support harvester ant claims), and Carpenter Ants. In order to support a general cockroach claim, efficacy must be demonstrated against American, German, and Oriental cockroaches.

Proposed Claims:

1. "Kills [Keeps killing] insects* [bugs] indoors on non-porous surfaces for up to x months [x weeks]"
2. "Provides a [protective] [invisible] barrier against insects* [bugs] indoors on non-porous surfaces for up to x months [x weeks]"
3. "Up to x months [x weeks] protection for listed insects* [bugs] indoors on non-porous surfaces"
4. "Provides [creates] a [protective] [invisible] barrier against insects* [bugs] indoors on non-porous surfaces for up to x months [x weeks] [during the bug season]"
5. "Prevents insects* [bugs] from entering the home for up to x months [x weeks]"

Claims #1-4 are acceptable provided that adequate data is submitted to support the claim and the claim is qualified by species for which efficacy is supported. Claim #5 is not acceptable, as residual control efficacy does not equate to preventing movement of insects from outside the home to the inside of the home.